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ABSTRACT

A workshop on mathematics and science careers for girls was part of an effort to remediate the effects of past sex bias on females' career and vocational choices. A model for organizing and conducting a conference with emphasis on careers for women in math and science is offered for educators in this publication. The guide includes: (1) planning tips (outlining preparatory procedures); (2) proposal and budget development (reviewing essential program components); (3) workshop do's and don't's (offering suggestions to insure program effectiveness); and (4) conference materials (providing examples of survey forms, workshop agenda, announcement letters and other communications, and evaluation sheets). (ML)

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A KIT TO DEVELOP AND PRESENT A MATH/SCIENCE CONFERENCE FOR FEMALES IN MIDDLE SCHOOL

Developed By

Portage Public Schools

Betty Lee Ongley, Counselor

in cooperation with

the Office for Sex Equity
Michigan Dept. of Education

Spring 1984

SE 046467

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OVERVIEW

"Future Focus: Math and Science Careers for Girls" was the second workshop presented for females at West Middle School in the Portage, Michigan school district. Redesigned after a similar program which was presented two years ago, the workshop continues to be part of the school district's efforts to remediate the effects of past sex bias on females' career and vocational choices. Betty Lee Ongley, counselor at West Middle School, planned and coordinated both conferences.

All females in sixth, seventh and eighth grades were invited to participate in the half-day session. The session was keynoted by the area's female representative to the state legislature. Following a panel presentation by a veterinarian, orthodontist, computer program administrator and nursing instructor, students rotated among four workshops that were led by adult females in math and science fields. One workshop featured high school seniors and recent graduates in osteopathy, food management, paper science, exercise physiology and medical technology.

Ms. Ongley patterned the conference after a similar workshop she attended at a local university three years ago. She drew up a brief proposal for a middle school audience and presented it to the central administration for approval. Securing mini grant funds from the intermediate school district, the first conference was presented in 1982. This year the conference was repeated without the support of outside funding and cost each girl only $1.00 to attend.

Office for Sex Equity staff attended "Future Focus" this year, after learning of the conference from a teacher. As a result, A Kit to Develop and Present a Math/Science Conference for Females in Middle School has been developed from Ms. Ongley's experiences. The Kit includes tips for planning, a list of do's and don'ts, thoughts on developing a proposal and budget, and sample letters and materials for carrying out a conference from the planning stage to the evaluation stage. Free copies of the Kit are available from the Office for Sex Equity, Michigan Dept. of Education, P.O. Box 30008, Lansing, MI 48909.

TIPS FOR PLANNING A MATH AND SCIENCE
CONFERENCE FOR GIRLS

*1. Survey students to determine the potential interest in a math/science workshop.

2. Organize your program and budget in the form of a two page (outlined) proposal to a building or central administrator.

*3. Schedule the workshop for one-half day in the afternoon when students are not scheduled for classes but have been transported to school in the morning. Half days for parent/teacher conferences, for example, are an excellent time slot.

4. Enlist the cooperation of your colleagues in the building. Colleagues can be asked to:

- Cut out name tags.
- Help with registration.
- Suggest female adult role models in math/science who might be willing to participate.
- Recommend students who should attend the workshops.
- Promote the workshop in their classes.
- Invite their children to attend the workshop, even though their children may not attend school in the building or school district.

5. Visibly carry out the math/science theme by using, for example:

- The shape of flasks or beakers for name tags.
- * A reference table with free materials, posters, career information on math/science, etc.
- A roving photographer throughout the workshops to take pictures of students (use these to make a bulletin board or display in the central hallway when the next year's workshop is first announced.

6. Make certain the following points are articulated at some point during the workshop:

- The role of women is changing so that working outside the home is no longer a choice for most women. Young women must plan to work and have careers.
- Career goals constantly change for many people, and it is not unusual to be undecided about <u>exactly</u> what you want to do until students are much older.

6. (Continued)

- It is important to recognize the difference between what you <u>want</u> to do and what you <u>can</u> do. Two questions to guide young women's career choices that must be answered are (1) Are you qualified? and (2) Is there a market for your skills and talents?
- Sex discrimination does exist in the job market, particularly in those fields (such as math/science) where only a few women have held jobs. (Give examples of how sex discrimination operates. Use salary differences, promotion opportunities, individual experiences of panel members and workshop leaders.) These points can be made in introductory remarks, by a keynote speaker or by panel members and workshop participants.

7. Give positive value and "status" to the workshop and to the adult women who participate on the panel and as workshop leaders. Encourage students to get their autographs, arrange a follow-up article with photographs in the local newspaper and in the district/building newsletter. Contact community businesses and employers in the math/science area for a "donation" in the form of providing a speaker or free buttons, pins, pencils, pens, hats, rulers, charts, etc. for the students with the company name printed on it.

*8. Conduct an evaluation of the workshop among students. Give serious consideration to the students' comments when planning next year's workshop.

*Sample material is provided in the last section of this <u>Kit</u>.

DEVELOPING A PROPOSAL

The first time the workshop is offered, a proposal should be outlined and submitted to the central administration (preferably) or building principal for approval. The proposal should outline the purpose, tenative content of the panel and workshops, and a budget. The proposal should reflect the best judgments of a small committee of 4-5 persons including at least one building administrator, one teacher, one community or business representative and one parent. Depending upon the judgments of the planning committee and availability of free services in the district (printing, postage, materials, food), the budget in the proposal should reflect the assumption that some or all of these services will be provided free. In turn, reference to the approval of the proposal from the central administration should introduce all future communications and arrangements made directly with printers, custodians, cafeteria staff, building secretaries, etc.

BUDGET

The following costs will need to be considered in developing a budget:

Printing (letters, agenda, program)
Postage (letter to parents)
Materials (folder for each participant, name tags)
Juice/fruit (if juice break is included)
Lunches for guest speakers (in school cafeteria)

Before assessing the cost per participant, determine if any of these budget items can be provided free of charge. If your school district has its own printing facility or there is a vocational printing program at the high school or intermediate school district, check to see if all printing can be done there. See if community businesses or companies have "extra" folders they would donate.

If printing can be picked up at no charge, a $1.00 per participant charge is reasonable, based on these costs:

Juice	$ .35
Stamp	.20
Share of lunch costs for adult guests	.25
Other costs	.20
	$1.00

DO'S OF THE WORKSHOP

1. Do invite girls from all grade levels in the building.

2. Do look first at the female parents in your building who could serve as panel members and workshop leaders. The need to go outside the school to identify female adults working the the math/science area can be minimized by first assessing the most available pool of parent workers.

3. Do stress the nontraditional careers in math/science. More often than not, the nontraditional careers will be higher paying and offer more promotional opportunity than the traditional careers.

4. Do assume you will have to promote the workshop extensively the first time it is offered. Five minute presentations to every class of students in the building is the best place to start.

5. Do invite teachers and administrators at the building to lunch with the adult panel members and workshop leaders before the program for students begins in the afternoon.

6. Do try to achieve a wide variety in the career fields represented at the workshop. However, don't waste speakers' or students' time at the expense of trying to gather too large a representative sampling.

DON'TS OF THE WORKSHOP

1. Don't repeat the workshop every year. Given the audience in your building, it is better to repeat the workshop every other year, thus appealing once more to the 6th graders in a middle school or 7th graders in a junior high building who missed the first workshop.

2. Don't neglect the more traditional math/science careers for women but emphasize the experience and skills that can be transferred from traditional jobs into positions involving management, administration and program planning.

3. Don't assume the students will have any previous experience attending a conference or workshop. Students, for the most part, will not know what to expect. Similarly, the expectations for student behavior need to be clearly defined. Have students who are planning to attend draw up a list entitled "How to Behave at a Conference." Stress the "grown up" experience this is providing to most students for the first time, as well the expectations for mature behavior.

4. Don't spend time and energy lining up panel members and workshop leaders unless you guarantee each will have a reasonable amount of time to make a presentation. Carefully look at the length of time allowed for workshops and the panel presentation, and the number of resource people you can invite for each workshop and the panel. It is recommended that students not be able to choose among several workshops. Rather students are expected to attend whatever workshops and panel(s) the planning committee has arranged.

SAMPLE MATERIALS (A)-(K)

10

Pre-Conference Survey - Future Focus, Science Careers for Girls

(A)

1. Name_____Science Teacher_____

		Not at all	A very little bit	Some	Quite a little bit	A whole lot
2. Interest In:	Science	1	2	3	4	5
	Math	1	2	3	4	5

3. I think I'll need Science in my future career.

1 2 3 4 5

4. I think I'll need Math in my future career.

1 2 3 4 5

5. I would be interested in attending a conference on careers in Science on Friday, January 29, 1982 when there is no school for students.

Yes_____ No_____

6. I would be able/unable to pay $1.00 for a conference fee, including lunch.

7. I would be able/unable to provide for my own transportation.

8. I think this conference for girls is a good idea.

Yes_____ No_____

Why? or Why not?

(B)

PORTAGE PUBLIC SCHOOLS
WEST MIDDLE SCHOOL
[illegible] DRIVE
PORTAGE, MICHIGAN 49002

March 5, 1984

Conference- Future Focus: Math & Science Careers for Girls

Dear Parents,

A conference for girls in the 7th and 8th grade of Portage West Middle School has been planned for the afternoon on Friday, March 23, 1984. This is the last day of the marking period, when there is no school scheduled for students in the afternoon.

The emphasis of this conference will be on careers for women in the field of math and science. The conference will be conducted by women in these careers in a panel discussion followed by small group workshops. The girls will be given an opportunity to learn about careers in math and science and ask questions of women in such careers.

The conference will be held at West Middle School with registration and lunch starting at 11:30 A.M. with the conference ending at 4:00 P.M. A pre-registration fee of $1.00 will be collected for each girl attending the conference.

Since the girls will be in regular classes in the morning, lunch will be made available to them at the cost of a regular lunch.

Busses will not be available for transportation after the conference so the girls will need transportation home.

If you have any questions, please call the Guidance Office at 327-3081 Ext. 247.

Sincerely,

Betty Lee Ongley

Betty Lee Ongley
Coordinator of Guidance

I give permission for my daughter _____ to attend the conference at West Middle School on Friday, March 23, 1984.

Parent's Signature _____

Tear off and return this registration form with your $1.00 to the Guidance Office.

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PRESENTERS

WORKSHOP A - College Seniors/High School Graduates

Industrial Marketing/Paper Science
Exercise Physiologist
Medical Doctor/Osteopathy
Dietician/Food Management
Medical Technician

WORKSHOP B

Architect
Sales Engineer
Boiler Inspector
Accountant
Patent Attorney

WORKSHOP C

Registered Nurse
Occupational Therapist
Health Educator
Pharmacist
Sports Clinician

WORKSHOP D

Biochemist
Botany Professor
Science Professor

PANEL

State Representative
Orthodontist
Veterinarian
Computer Administrator
Nurse Instructor

PORTAGE PUBLIC SCHOOLS
WEST MIDDLE SCHOOL
7145 COOLEY DRIVE
PORTAGE, MICHIGAN 49002

(D)

March 5, 1984

Dear

There will be a math & science conference for girls at West Middle School on Friday, March 23, 1984. It is entitled "Future Focus: Math & Science Careers for Girls". It will be held on an afternoon when students are not normally scheduled for school. More than 100 girls have pre-registered for the conference.

Many women in the fields of science and math will be in attendance to share with the girls some of the particulars of their careers. Rep. Mary Brown will be here to help welcome the girls to the activities of the day, and other adult visitors will be in attendance.

You are invited to spend the afternoon with us, or to spend part of the afternoon, for either the Panel or the Workshops. We'd appreciate a call or note to affirm your presence and to let us know whether or not you can join us for lunch.

Sincerely,

Betty Lee Ongley

Betty Lee Ongley
Coordinator of Guidance
Phone 327-3081, Ext. 247

PORTAGE PUBLIC SCHOOLS
WEST MIDDLE SCHOOL
PORTAGE MICHIGAN 49002

(E)

Future Focus: Science Careers For Girls

Dear Presenter:

We are really pleased and grateful that you have consented to help us with our conference on Friday, January 29, 1982. The positive response that you have given is very supportive to an endeavor such as this.

Enclosed is a Tentative Agenda, a map to show the location of West Middle School, and a sheet of instructions which might be helpful in your planning. Our ultimate goal is to introduce our students to these various branches of science as viable future career choices, and so to broaden their horizons.

You are invited to spend the whole day with us, or to at least join us for lunch even if you can only be here for the morning panel or the afternoon workshops. We'd appreciate a call or note to reaffirm our arrangements and to let us know about lunch.

Thanks again, and teachers as well as students are looking forward to seeing, hearing and meeting you.

Sincerely,

Betty Lee Ongley
Coordinator
Phone: 327-3081 - Ext. 247

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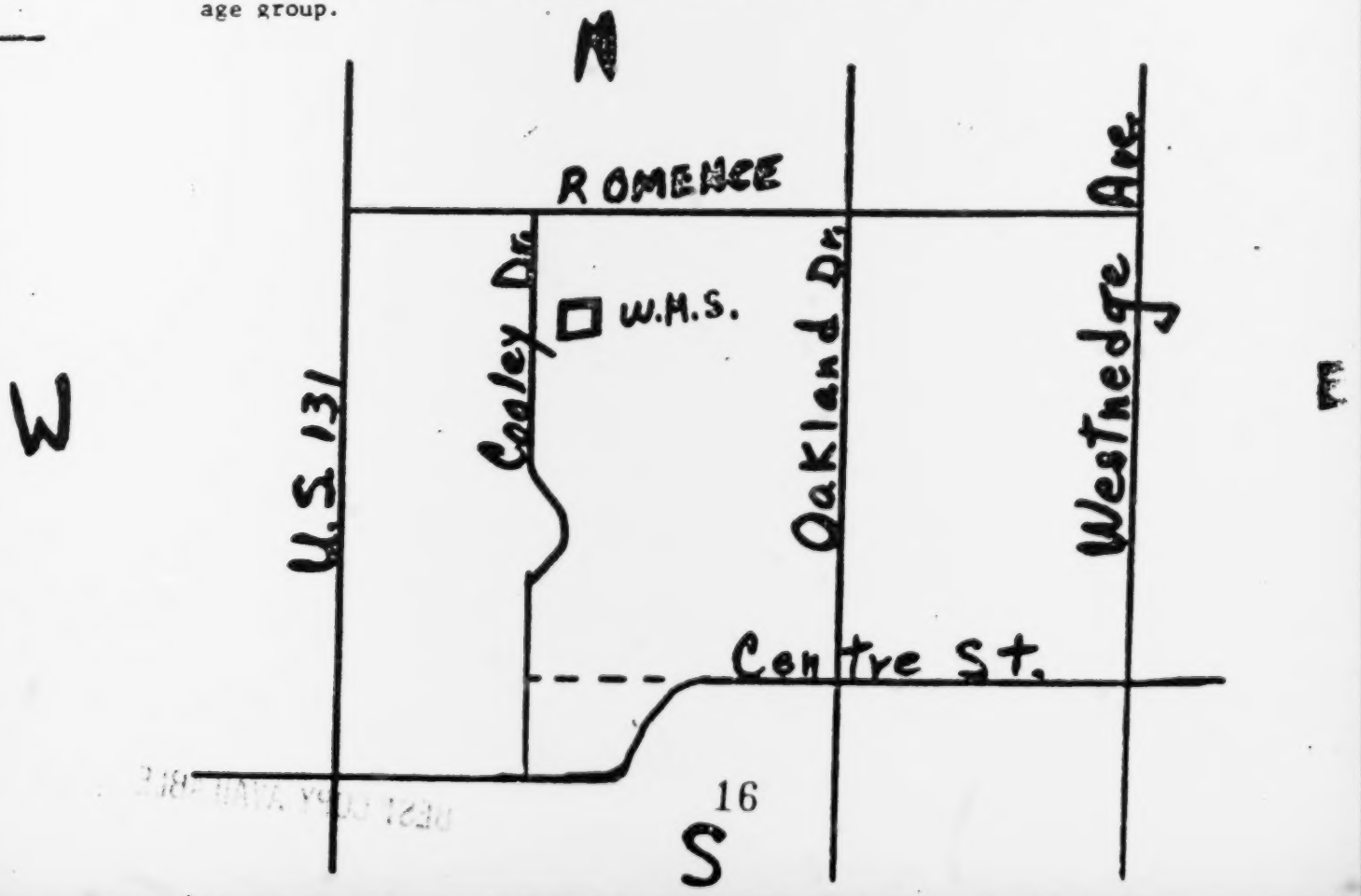
Suggestions for Approaching Middle School Students

1. What do you study in your field? ..i.e., what is Chemistry, Geology, etc.?
2. How and/or why did you become interested in your field?
3. What did your preparatory education entail?
4. What are some interesting experiences you have had, related to your field? (Students may find it easier to relate to these than to more abstract aspects of the field).
5. What is a typical day like in your career field?
6. Any "tools of the trade" or "hands on" things you might choose to bring would also be in keeping and probably helpful. Any visual aids will usually help to focus the attention of this age group.



PORTAGE PUBLIC SCHOOLS
WEST MIDDLE SCHOOL
PORTAGE, MICHIGAN 49002

(G)

February 23, 1984

To Whom It May Concern:

On March 23, 1984, the Guidance Department of Portage West Middle School will be sponsoring its second conference entitled: Future Focus: Math and Science Careers for Girls. This conference is being held for approximately 150 seventh and eighth grade girls to broaden their awareness of career opportunities for women in the areas of math and science.

For this conference we are in need of informational brochures and materials for distribution. It would be appreciated if you could help make this conference successful by providing whatever free materials you publish on career opportunities for women in the math and science fields.

Sincerely,

Betty Lee Ongley

Betty Lee Ongley
Guidance Counselor

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Addresses and Brochure Titles

Write to these organizations to recieve those brochure copies that interest you.

American Chemical Society Career Services
1155 Sixteenth Street, N.W.
Washington, D.C. 20036

- American Chemical Society Dist. of Approved Schools 1984
- Careers as a Chemical Technician
- A Career in Chemical Engineering
- A Career in Analytical Chemistry
- A Career in Biochemistry

American Meteorological Society
45 Baicon Street
Boston, Massachusetts 02108

- The Challenge of Meterology

American Society for Microbiology
1913 Eye Street, N.W.
Washington, D.C. 20006

- Microbiology in Your Future
- American Society for Microbiology Fact Sheet
- Colleges and Universities Creating Degrees in Microbiology

American Statistical Association Careers in Statistics
Suite 640 806 Fifteenth St., N.W.
Washington, D.C. 20005

- Careers for Women in Mathematics

The Center for Women's Services
Western Michigan University
Kalamazoo, MI 49007

- Women in Science Brochures available on - Psychology, Geology, Economics, Computer Science, Biology, Chemistry

Society of Women Engineers
United Engineering Center Room 305
345 East 47th Street
New York, NY 10017

- Betsy and Robbie

The American Sociological Association
1722 N. Street, N.W.
Washington, D.C. 20036

- Careers in Sociology

AGENDA

Future Focus: Math and Science Conference for Girls

Date
Time
Place

11:30-12:30 PM	Lunch and Registration
12:30-1:00 PM	Welcome and Introductions Superintendent of Schools Workshop Coordinator Panel Members
1:00-2:00 PM	Panel Discussion
2:00 PM	Questions and Announcements
2:20 PM	Juice Break
2:30 PM	Workshops
3:50-4:00 PM	Wrap Up/Evaluation

Future Focus: Math and Science Career Conference for Girls
Friday, March 23, 1984
West Middle School

EVALUATION

In order to determine how well we have planned for this conference and to help plan for future conferences, please fill out the following form and leave it at the door as you leave this afternoon.

1. I liked the lunch that was served.

_____Yes _____No

2. The panel discussion was:

_____ okay

_____ helpful

_____ informative

_____ enjoyable

_____ all of the above

3. The workshop sessions presented much information that was:

_____ okay

_____ helpful

_____ informative

_____ enjoyable

_____ all of the above

4. We would appreciate any comments you may have about the conference. Please write your comments below.

(K)

PORTAGE PUBLIC SCHOOLS
WEST MIDDLE SCHOOL
7145 COOLEY DRIVE
PORTAGE, MICHIGAN 49002

March 27, 1984

Dear

Thank you for participating in our conference, Future Focus: Math and Science Careers for Girls. Approximately 70 girls attended Friday on their half day off from school. Not only the students, but the adults who were in attendence found the conference informative and stimulating, as well as enjoyable.

Mr. John Schreur, the Principal at West Middle School, also asks me to convey his "thanks" for your participation and willingness to share your time and talents.

Evaluations from the girls brought comments such as, "very enjoyable and interesting. I have alot of ideas now on what field I would like to go into. It was nice to have so many people who talked to us. The conference was very helpful for different information about different occupations."

These say, in the girls own words, "you were really appreciated!"

Most sincerely,

Betty Lee Ongley

Betty Lee Ongley
Coordinator

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